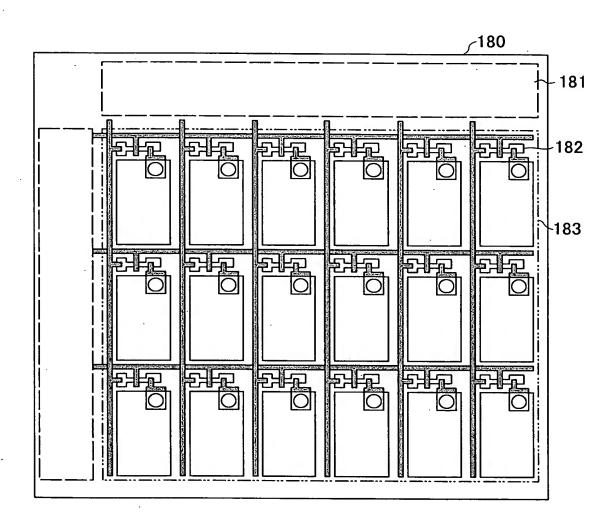
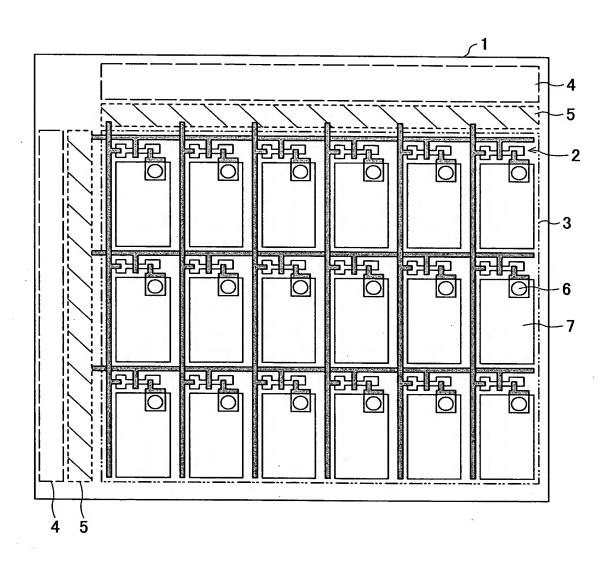
THIN FILM TRANSISTOR SUBSTRATE... 3/25/04
Kazushige Hotta
Greer, Burns & Crain, Ltd. (Patrick Burns)
Ref. No. 2803.70178
Sheet 1 of 46 (312) 360 0080

FIG.1



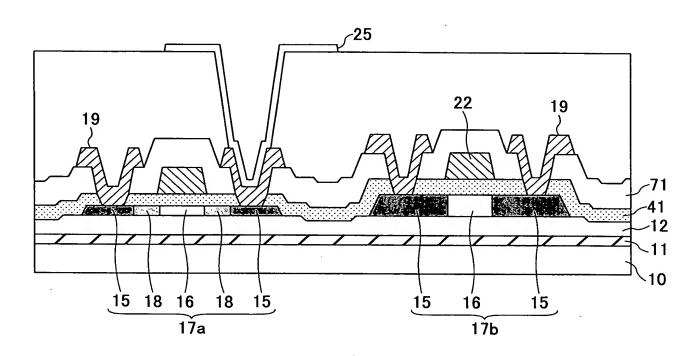
THIN FILM TRANSISTOR SUBSTRATE... 3/25/04
Kazushige Hotta
Greer, Burns & Crain, Ltd. (Patrick Burns)
Ref. No. 2803.70178
Sheet 2 of 46 (312) 360 0080

FIG.2

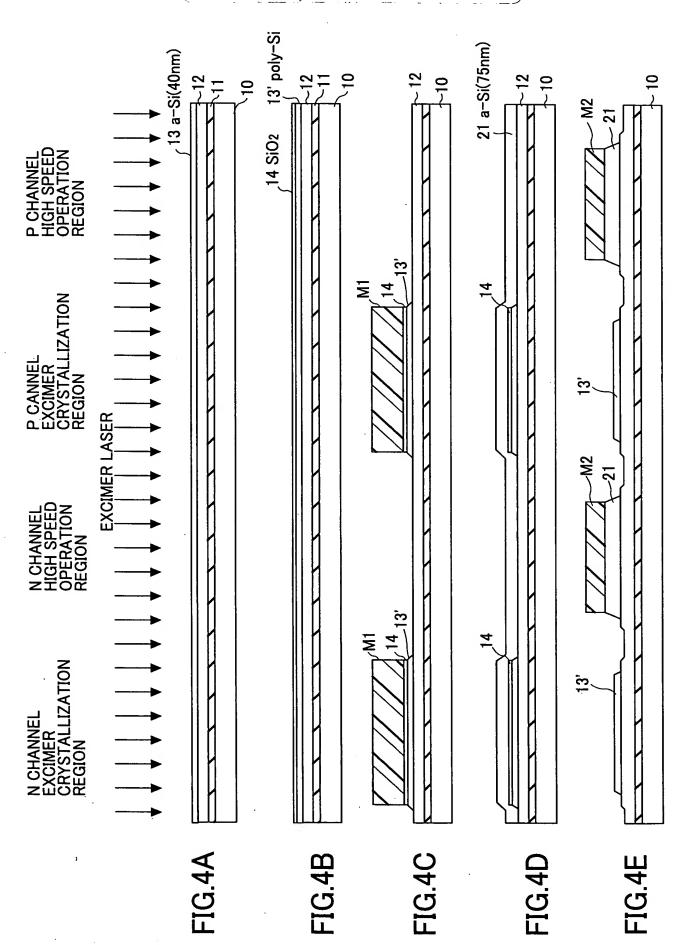


THIN FILM TRANSISTOR SUBSTRATE... 3/25/04
Razushige Hotta
Greer, Burns & Crain, Ltd. (Patrick Burns)
Ref. No. 2803.70178
Sheet 3 of 46 (312) 360 0080

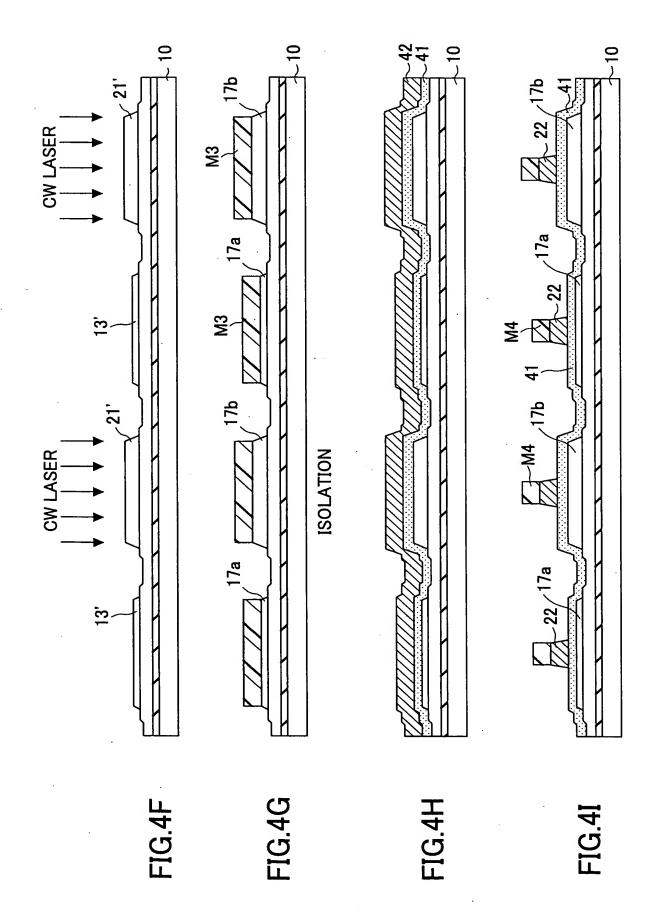
FIG.3



- 10 TRANSPARENT INSULATING SUBSTRATE
- 11 BASE SIN FILM
- 12 BASE SiO₂ FILM
- 15 SOURCE / DRAIN
- **16 CHANNEL REGION**
- 17a,17b ACTIVE LAYER (SEMICONDUCTOR FILM)
- **18 LDD**
- 19 SOURCE/DRAIN ELECTRODE
- 22 GATE ELECTRODE
- 25 PIXEL ELECTRODE
- 41 GATE INSULATING FILM
- 71 INTERLAYER INSULATING FILM



THIN FILM TRANSISTOR SUBSTRATE... 3/25/04
Razushige Hotta
Greer, Burns & Crain, Ltd. (Patrick Burns)
Ref. No. 2803.70178
Sheet 5 of 46 (312) 360 0080

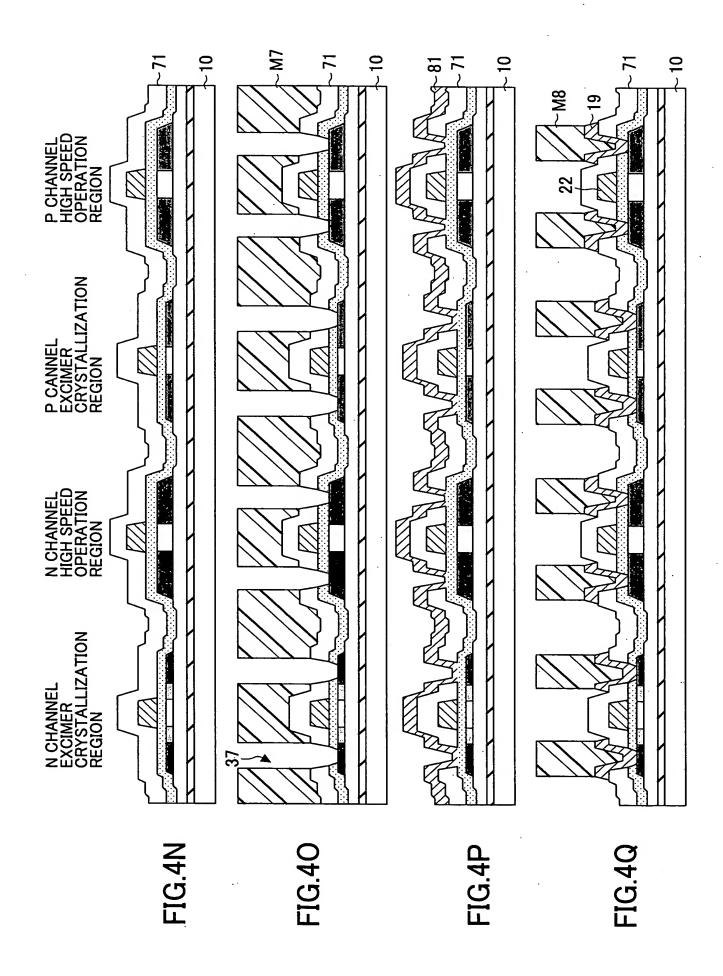


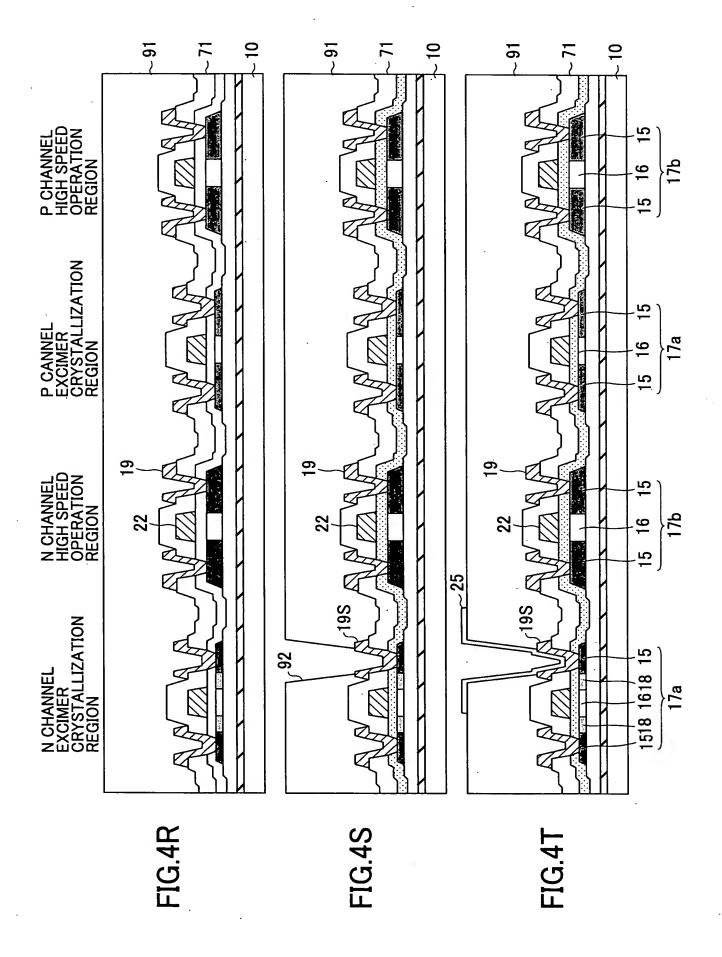
THIN FILM TRANSISTOR SUBSTRATE... 3/25/04
Razushige Hotta
Greer, Burns & Crain, Ltd. (Patrick Burns)
Ref. No. 2803.70178
Sheet 6 of 46 (312) 360 0080

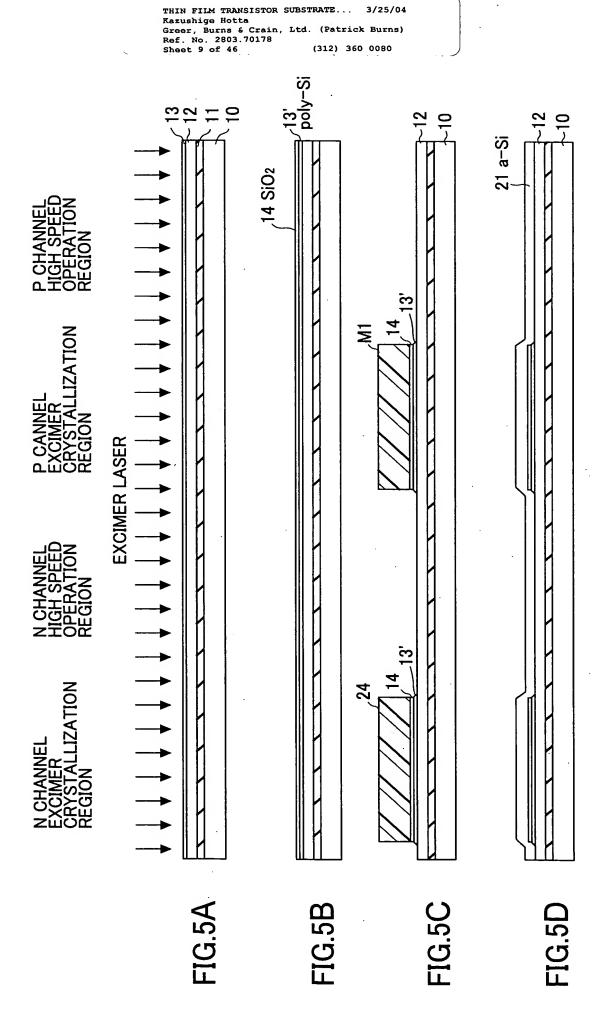
~M5

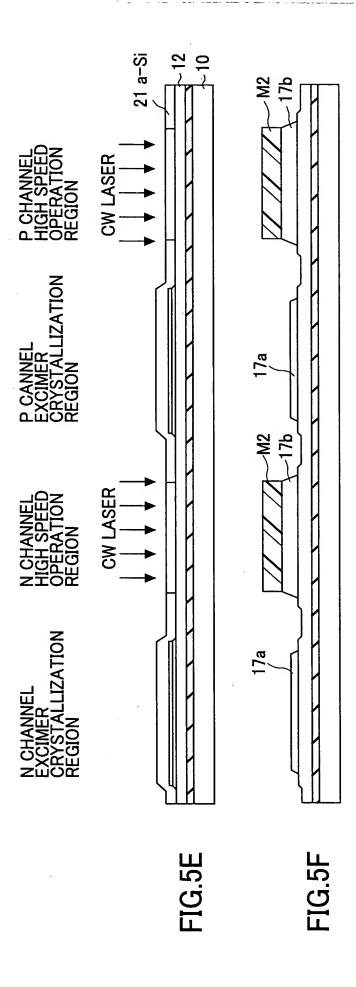
FIG.4M

THIN FILM TRANSISTOR SUBSTRATE... 3/25/04
Razushige Hotta
Greer, Burns & Crain, Ltd. (Patrick Burns)
Ref. No. 2803.70178
Sheet 7 of 46 (312) 360 0080









THIN FILM TRANSISTOR SUBSTRATE... 3/25/04
Kazushige Hotta
Greer, Burns & Crain, Ltd. (Patrick Burns)
Ref. No. 2803.70178
Sheet 11 of 46 (312) 360 0080 3/25/04 20 SiO₂ 13 a-Si(75nm) 21 a-Si(40nm) **EXCIMER LASER**

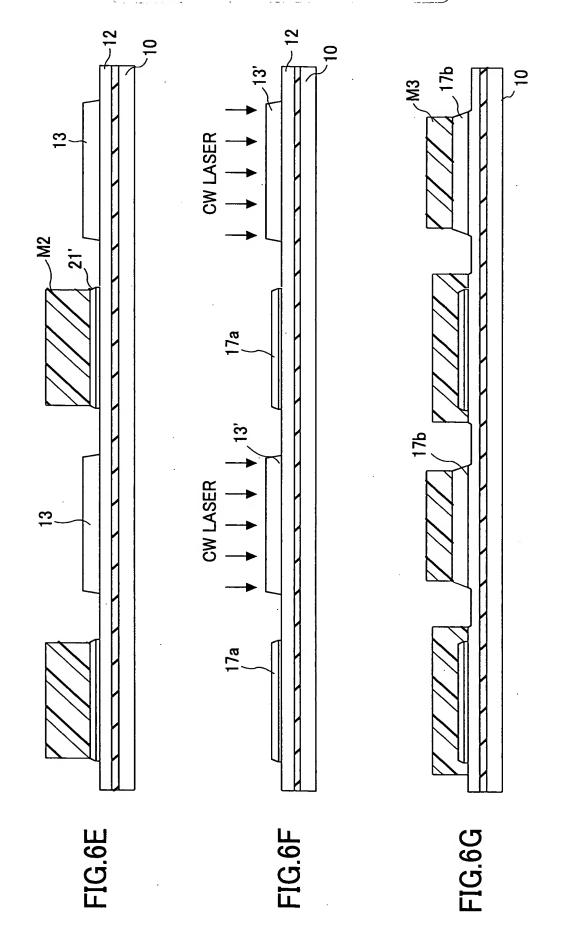
FIG.6C

FIG.6D

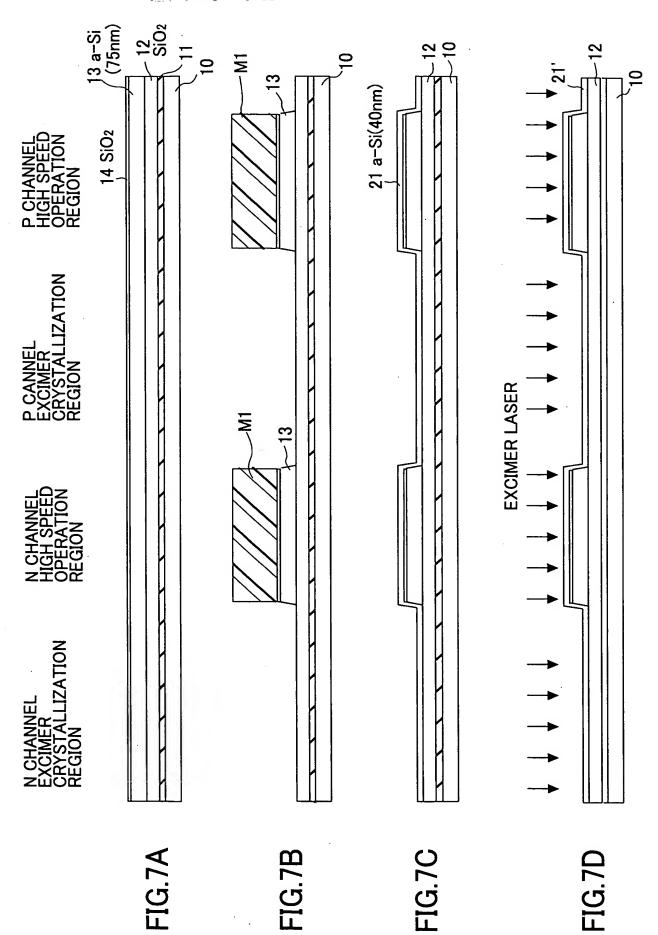
FIG.6A

FIG.6B

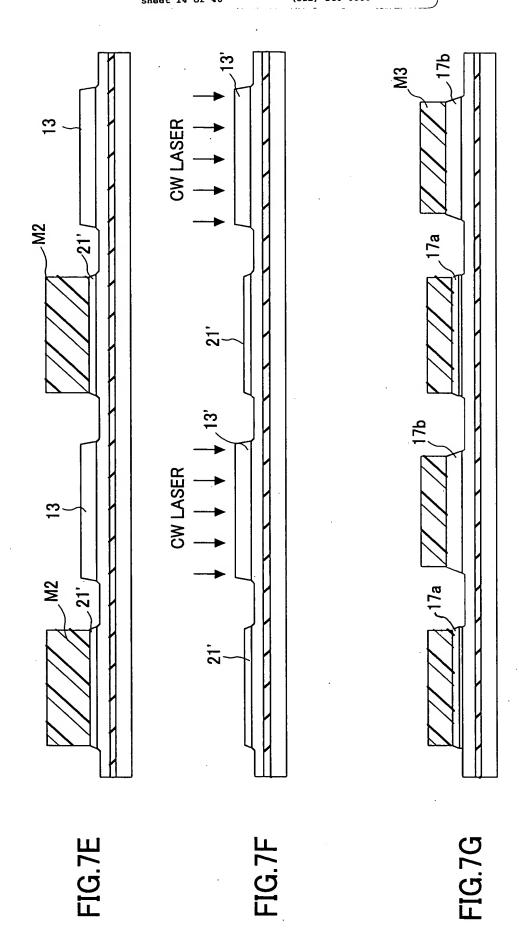
THIN FILM TRANSISTOR SUBSTRATE... 3/25/04
Razushige Hotta
Greer, Burns & Crain, Ltd. (Patrick Burns)
Ref. No. 2803.70178
Sheet 12 of 46 (312) 360 0080

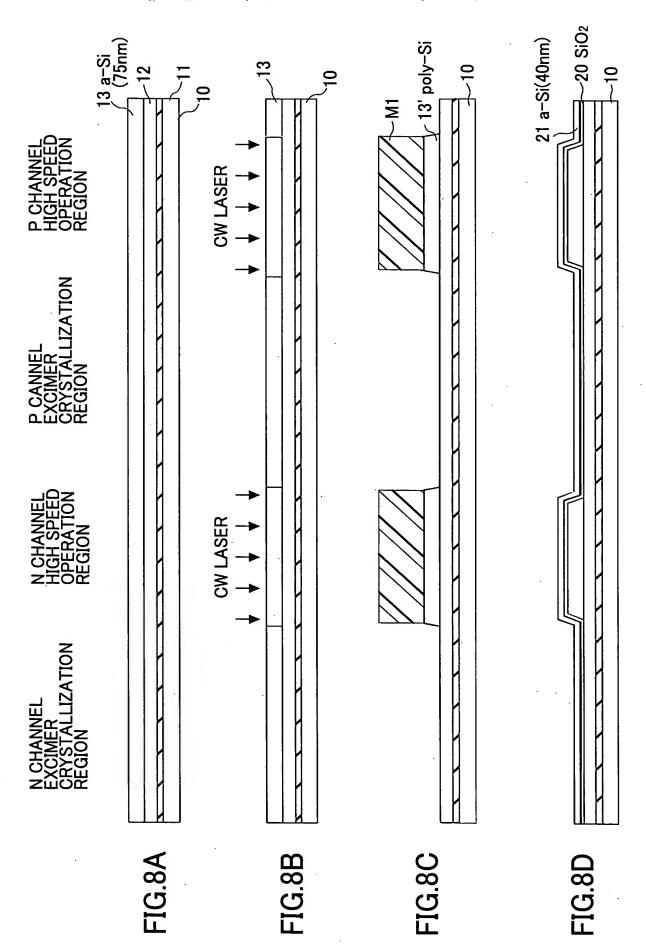


THIN FILM TRANSISTOR SUBSTRATE... 3/25/04
Razushige Hotta
Greer, Burns & Crain, Ltd. (Patrick Burns)
Ref. No. 2803.70178
Sheet 13 of 46 (312) 360 0080

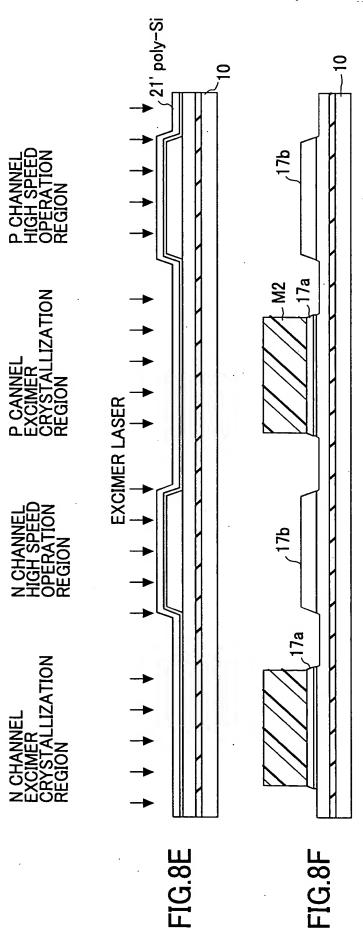


THIN FILM TRANSISTOR SUBSTRATE... 3/25/04
Kazushige Hotta
Greer, Burns & Crain, Ltd. (Patrick Burns)
Ref. No. 2803.70178
Sheet 14 of 46 (312) 360 0080

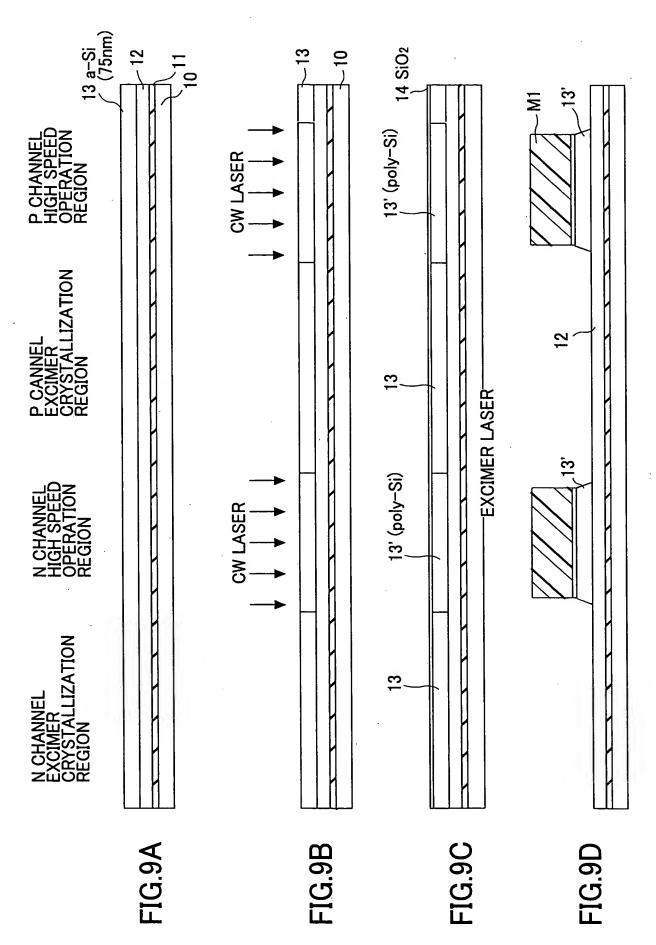




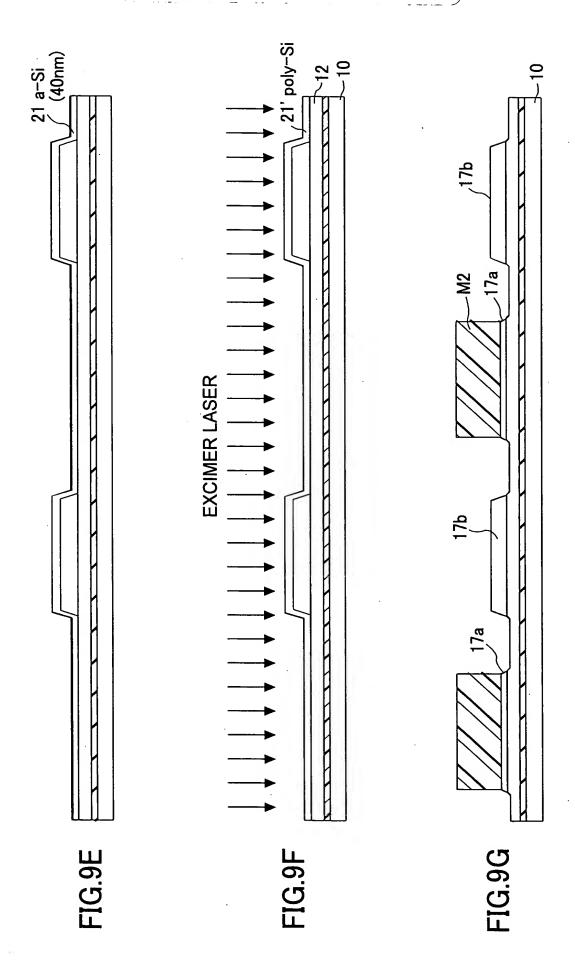
THIN FILM TRANSISTOR SUBSTRATE... 3/25/04
Razushige Hotta
Greer, Burns & Crain, Ltd. (Patrick Burns)
Ref. No. 2803.70178
Sheet 16 of 46 (312) 360 0080



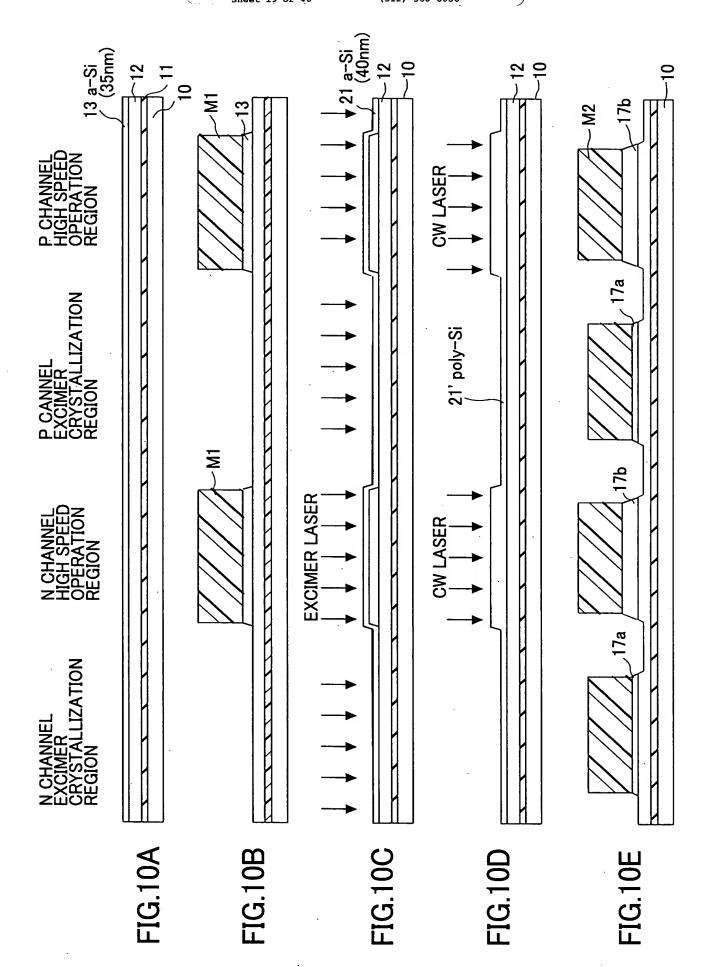
THIN FILM TRANSISTOR SUBSTRATE... 3/25/04
Razushige Hotta
Greer, Burns & Crain, Ltd. (Patrick Burns)
Ref. No. 2803.70178
Sheet 17 of 46 (312) 360 0080



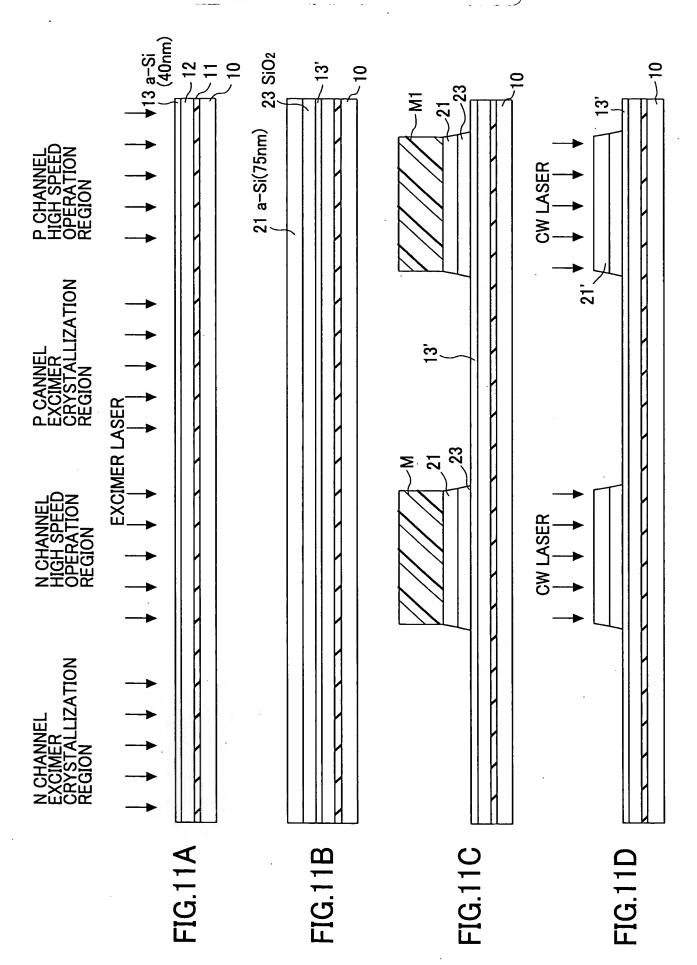
THIN FILM TRANSISTOR SUBSTRATE... 3/25/04
Razushige Hotta
Greer, Burns & Crain, Ltd. (Patrick Burns)
Ref. No. 2803.70178
Sheet 18 of 46 (312) 360 0080



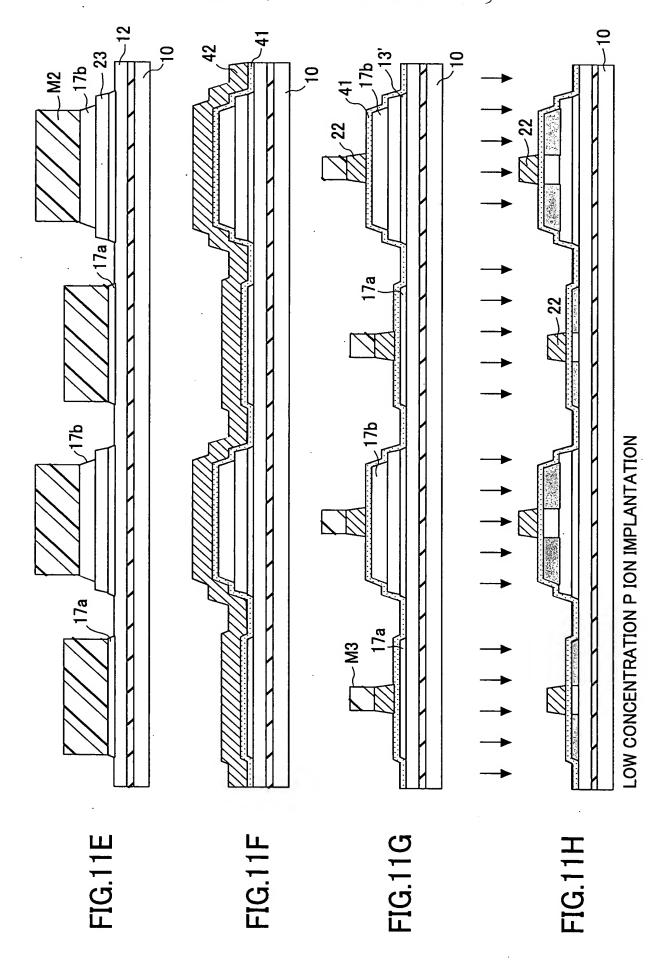
THIN FILM TRANSISTOR SUBSTRATE... 3/25/04
Razushige Hotta
Greer, Burns & Crain, Ltd. (Patrick Burns)
Ref. No. 2803.70178
Sheet 19 of 46 (312) 360 0080



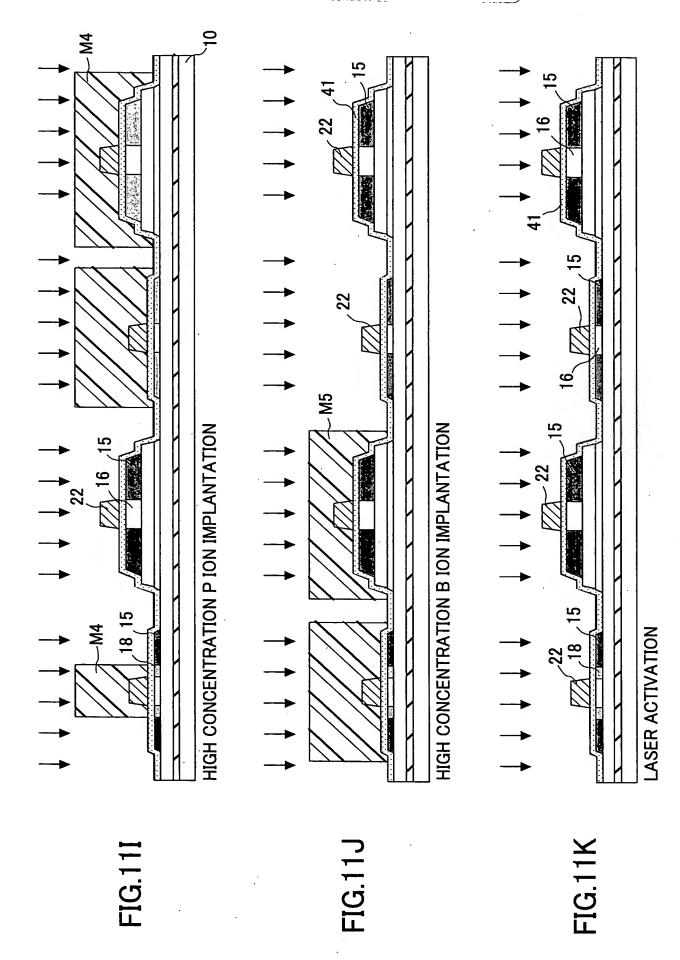
THIN FILM TRANSISTOR SUBSTRATE... 3/25/04
Razushige Hotta
Greer, Burns & Crain, Ltd. (Patrick Burns)
Ref. No. 2803.70178
Sheet 20 of 46 (312) 360 0080



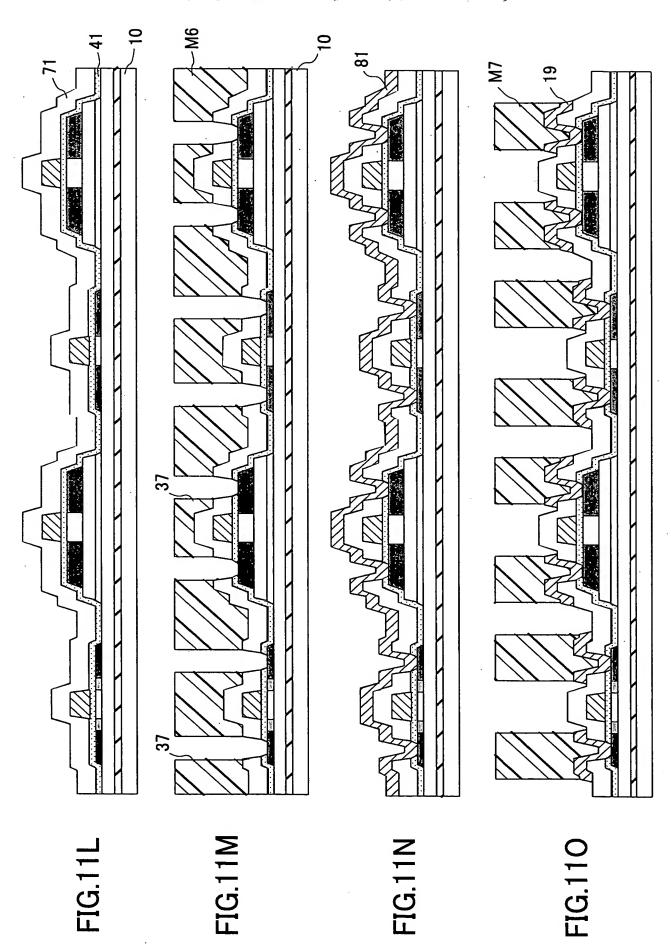
THIN FILM TRANSISTOR SUBSTRATE... 3/25/04
Razushige Hotta
Greer, Burns & Crain, Ltd. (Patrick Burns)
Ref. No. 2803.70178
Sheet 21 of 46 (312) 360 0080

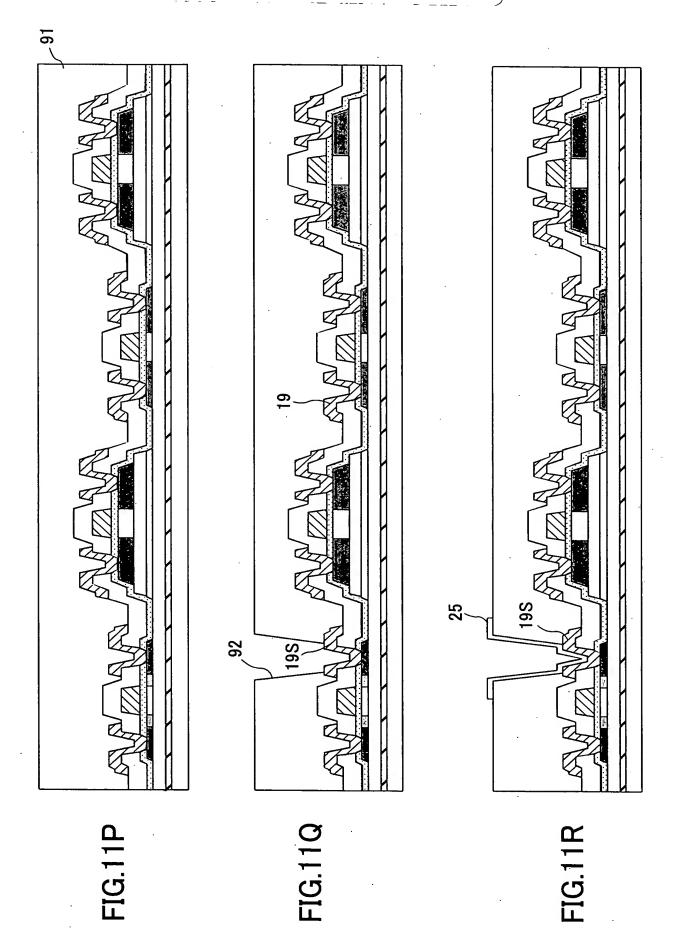


THIN FILM TRANSISTOR SUBSTRATE... 3/25/04
Kazushige Hotta
Greer, Burns & Crain, Ltd. (Patrick Burns)
Ref. No. 2803.70178
Sheet 22 of 46 (312) 360 0080



THIN FILM TRANSISTOR SUBSTRATE... 3/25/04
Kazushige Hotta
Greer, Burns & Crain, Ltd. (Patrick Burns)
Ref. No. 2803.70178
Sheet 23 of 46 (312) 360 0080





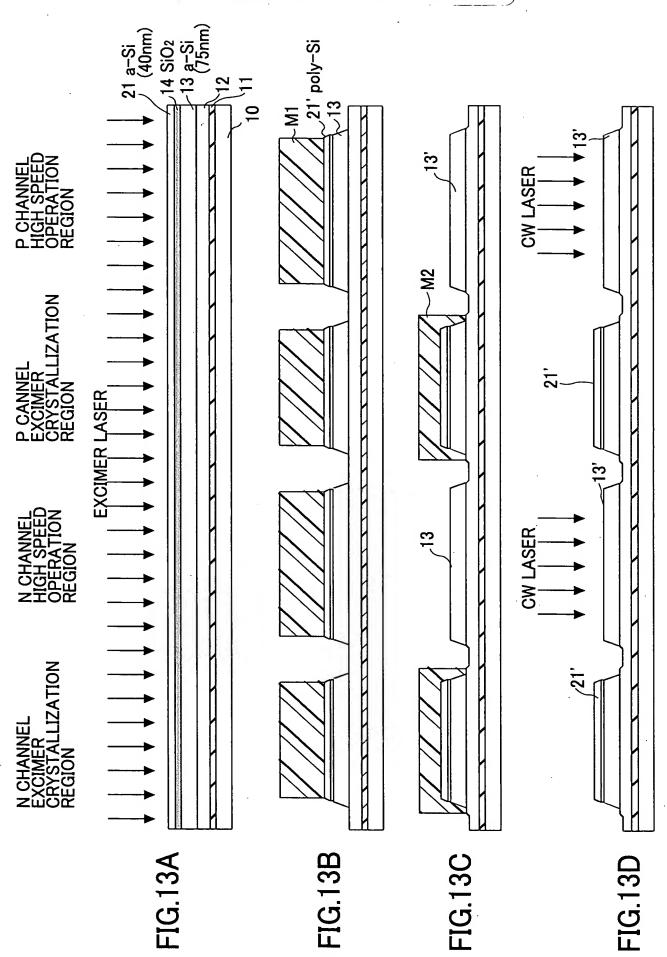
Greer, Burns & Crain, Ltd. (Patrick Burns)
Ref. No. 2803.70178
Sheet 25 of 46 (312) 360 0080 13 a-Si (40nm) ~ 21' poly-Si ~12 ~10 21 ^ M2 17b ^ **M** CW LASER HIGH SE OPERAT REGION က P CANNI EXCIMENT CRYSTA REGION EXCIMER LASER CW LASER N CHANN HIGH SPE OPERATI REGION 17a FIG.12A FIG.12C FIG.12D FIG.12B

THIN FILM TRANSISTOR SUBSTRATE...

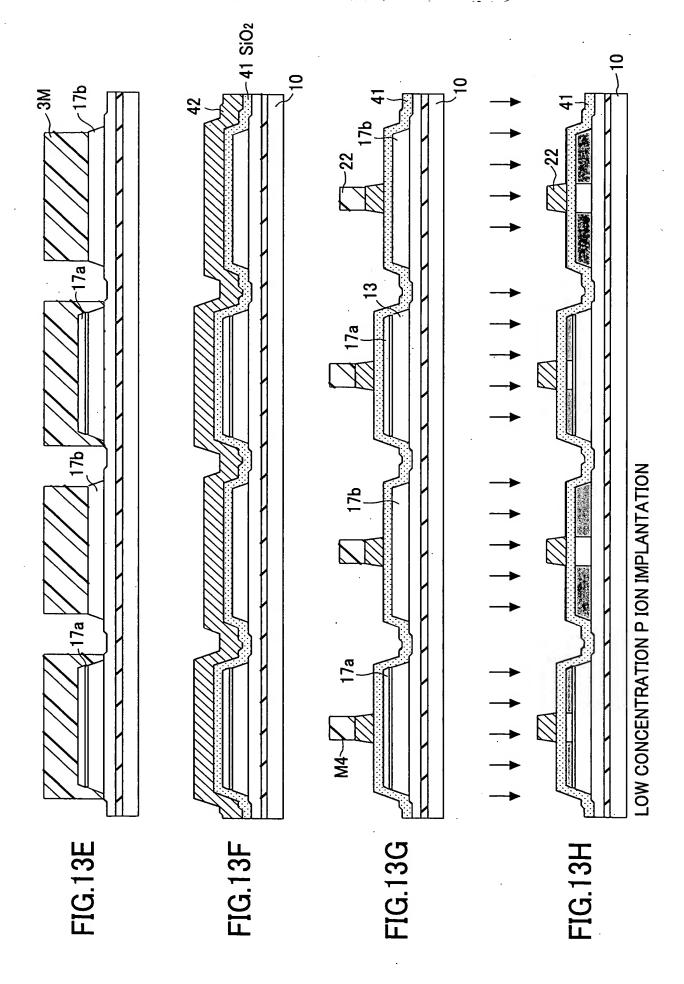
Kazushige Hotta

3/25/04

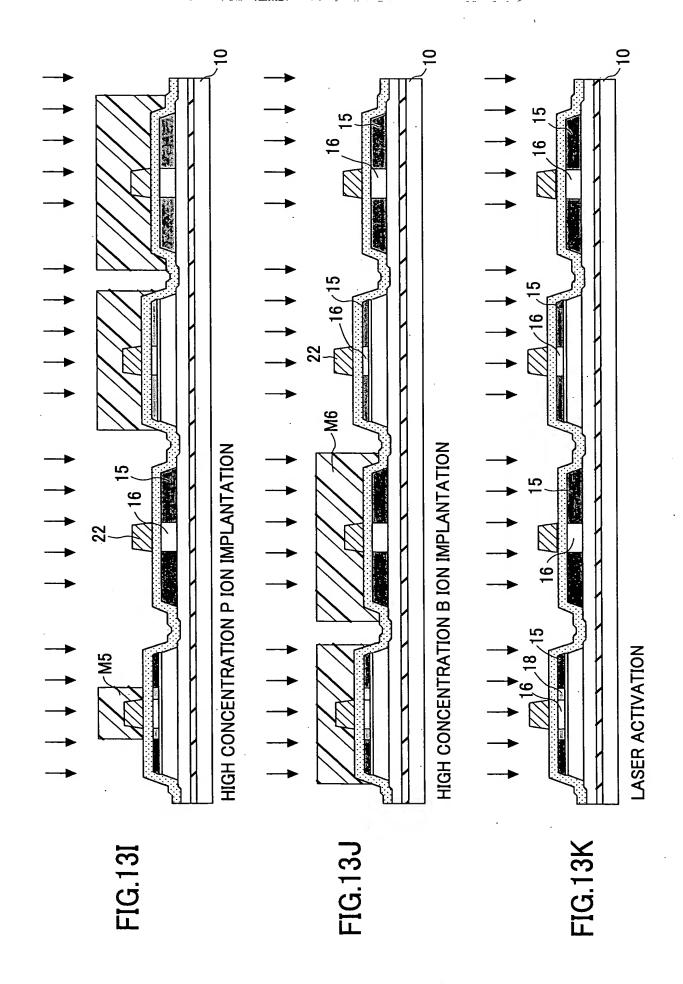
THIN FILM TRANSISTOR SUBSTRATE... 3/25/04
Razushige Hotta
Greer, Burns & Crain, Ltd. (Patrick Burns)
Ref. No. 2803.70178
Sheet 26 of 46 (312) 360 0080



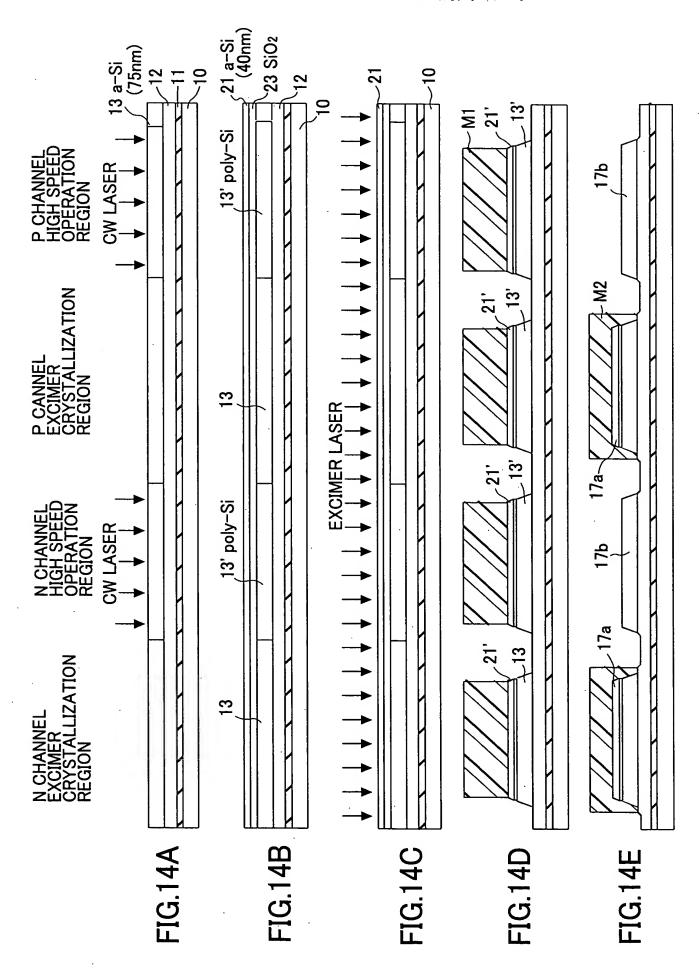
THIN FILM TRANSISTOR SUBSTRATE... 3/25/04
Kazushige Hotta
Greer, Burns & Crain, Ltd. (Patrick Burns)
Ref. No. 2803.70178
Sheet 27 of 46 (312) 360 0080



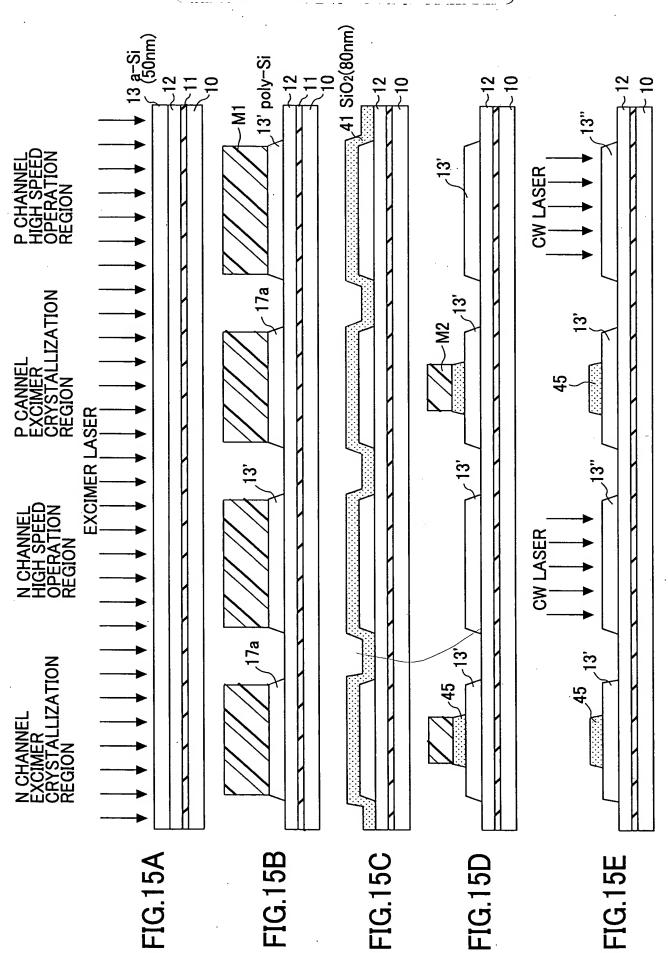
THIN FILM TRANSISTOR SUBSTRATE... 3/25/04
Kazushige Hotta
Greer, Burns & Crain, Ltd. (Patrick Burns)
Ref. No. 2803,70178
Sheet 28 of 46 (312) 360 0080



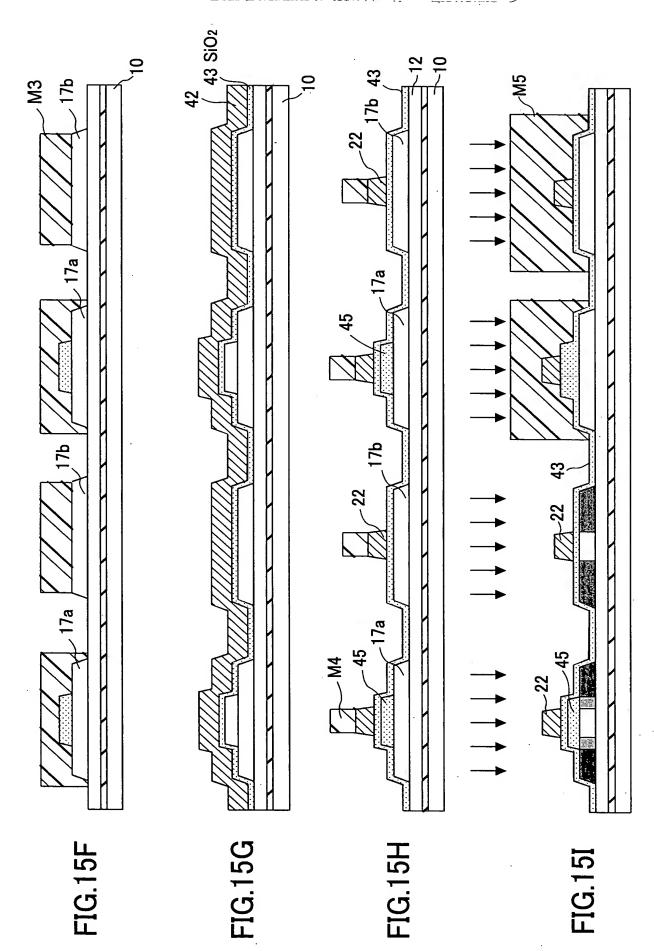
THIN FILM TRANSISTOR SUBSTRATE... 3/25/04
Kazushige Hotta
Greer, Burns & Crain, Ltd. (Patrick Burns)
Ref. No. 2803.70178
Sheet 29 of 46 (312) 360 0080



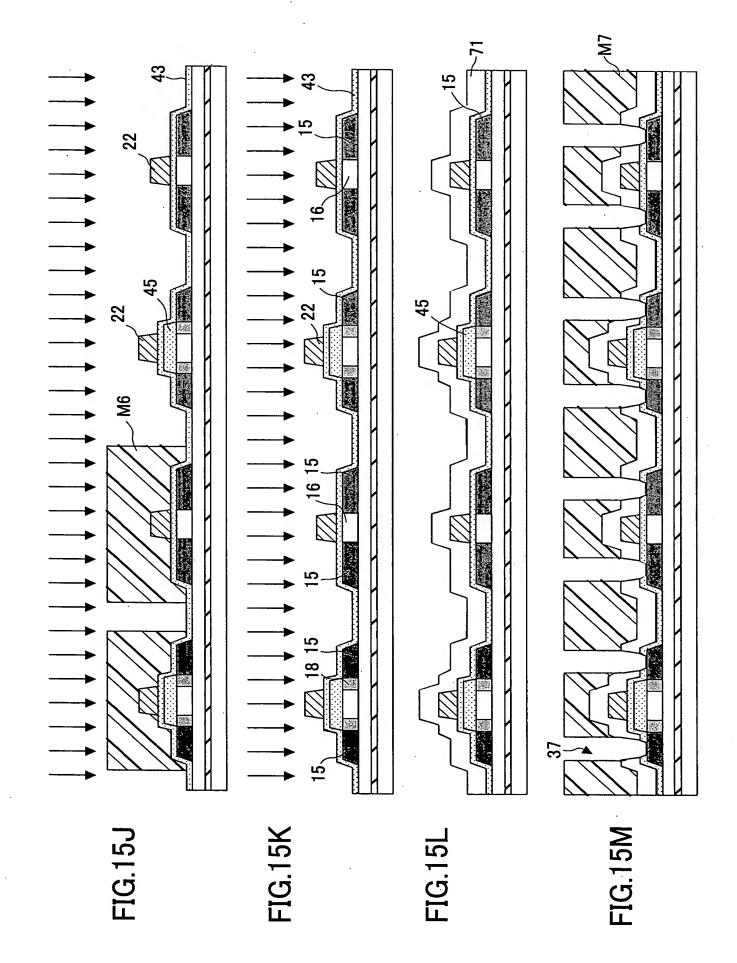
THIN FILM TRANSISTOR SUBSTRATE... 3/25/04
Razushige Hotta
Greer, Burns & Crain, Ltd. (Patrick Burns)
Ref. No. 2803.70178
Sheet 30 of 46 (312) 360 0080



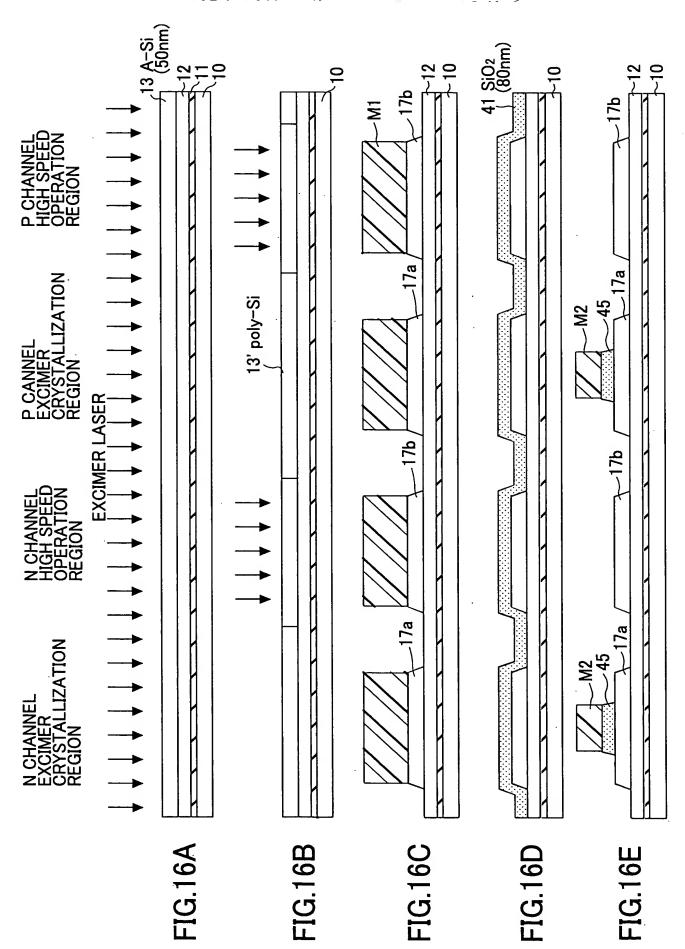
THIN FILM TRANSISTOR SUBSTRATE... 3/25/04
Kazushige Hotta
Greer, Burns & Crain, Ltd. (Patrick Burns)
Ref. No. 2803.70178
Sheet 31 of 46 (312) 360 0080



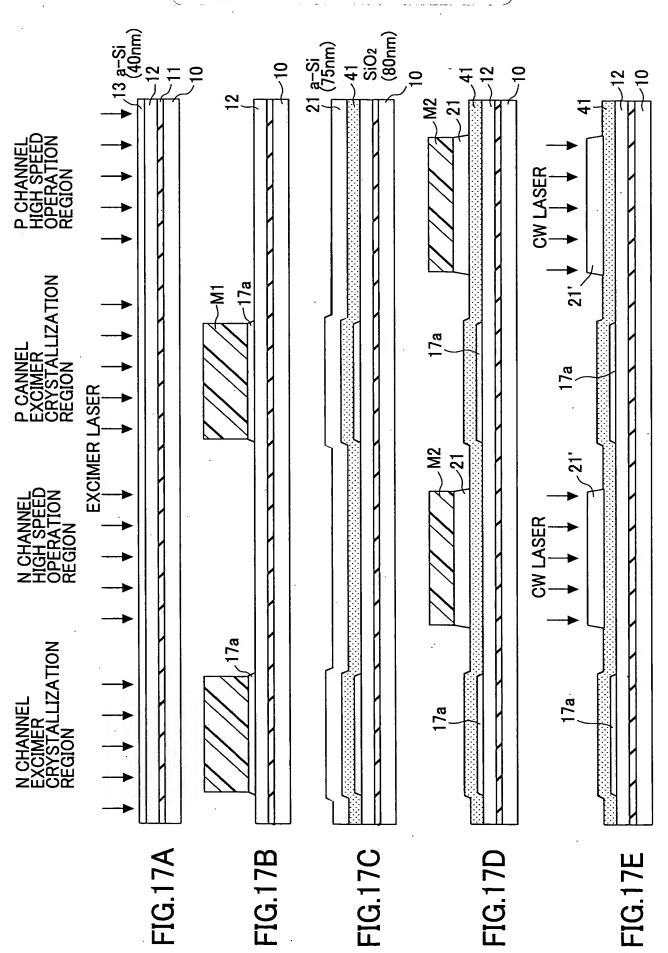
THIN FILM TRANSISTOR SUBSTRATE... 3/25/04
Kazushige Hotta
Greer, Burns & Crain, Ltd. (Patrick Burns)
Ref. No. 2803.70178
Sheet 32 of 46 (312) 360 0080



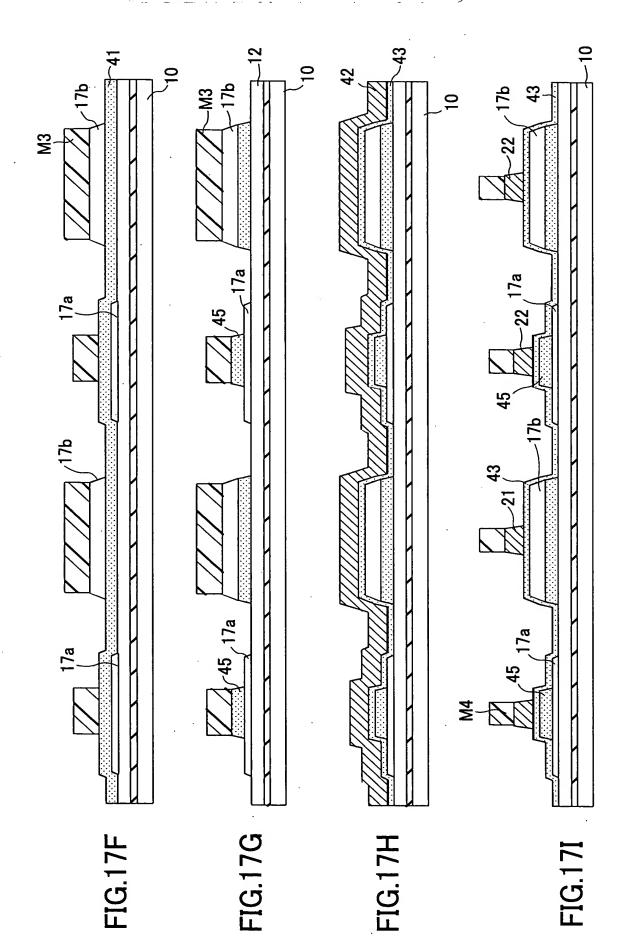
THIN FILM TRANSISTOR SUBSTRATE... 3/25/04
Razushige Hotta
Greer, Burns & Crain, Ltd. (Patrick Burns)
Ref. No. 2803.70178
Sheet 33 of 46 (312) 360 0080



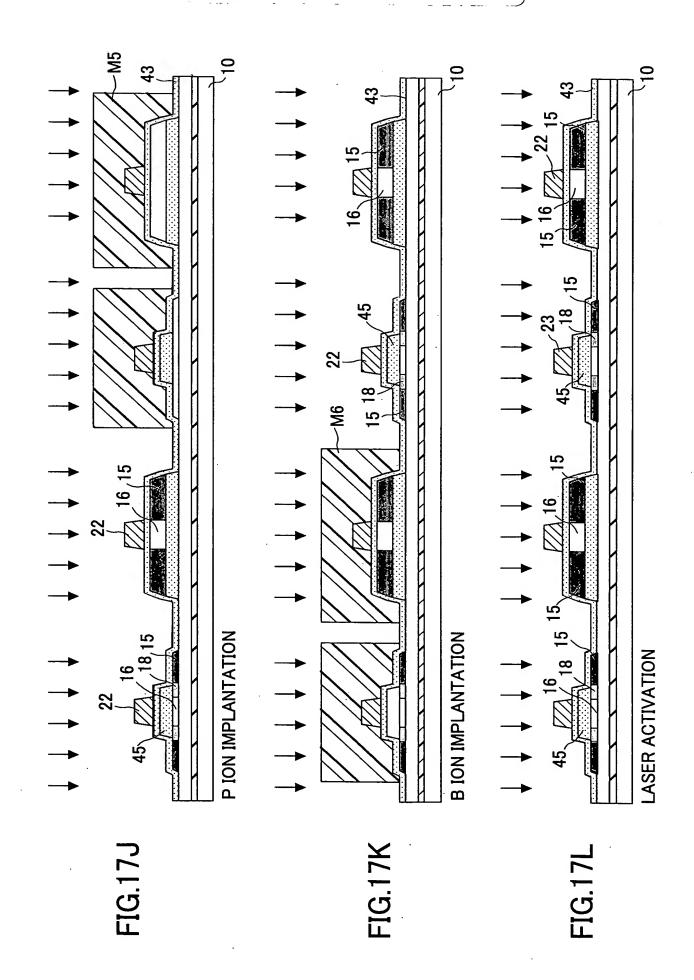
THIN FILM TRANSISTOR SUBSTRATE... 3/25/04
Kazushige Hotta
Greer, Burns & Crain, Ltd. (Patrick Burns)
Ref. No. 2803.70178
Sheet 34 of 46 (312) 360 0080



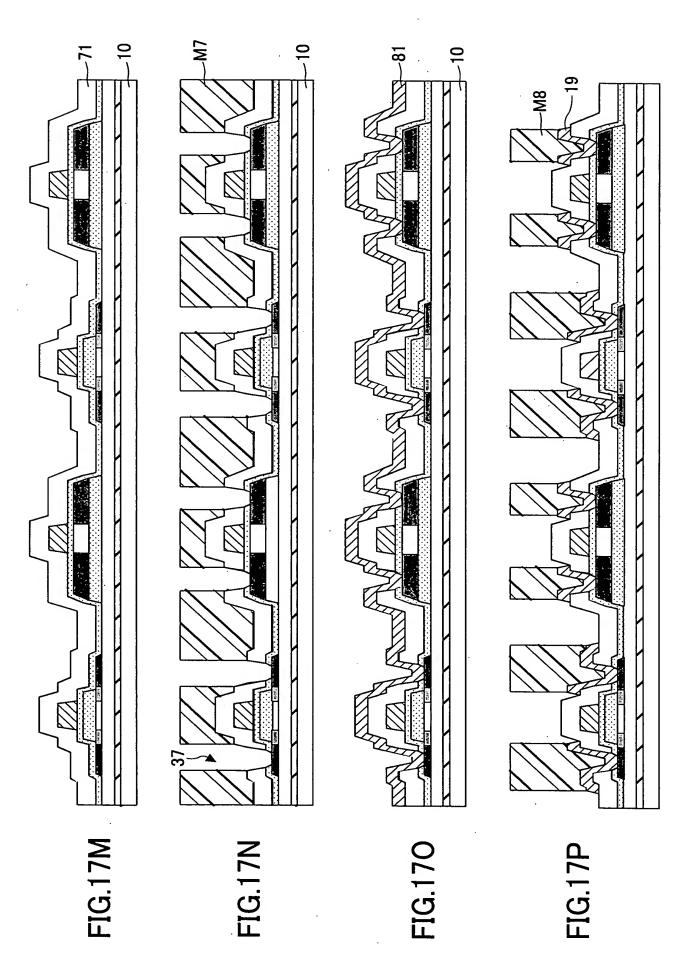
THIN FILM TRANSISTOR SUBSTRATE... 3/25/04
Kazushige Hotta
Greer, Burns & Crain, Ltd. (Patrick Burns)
Ref. No. 2803.70178
Sheet 35 of 46 (312) 360 0080



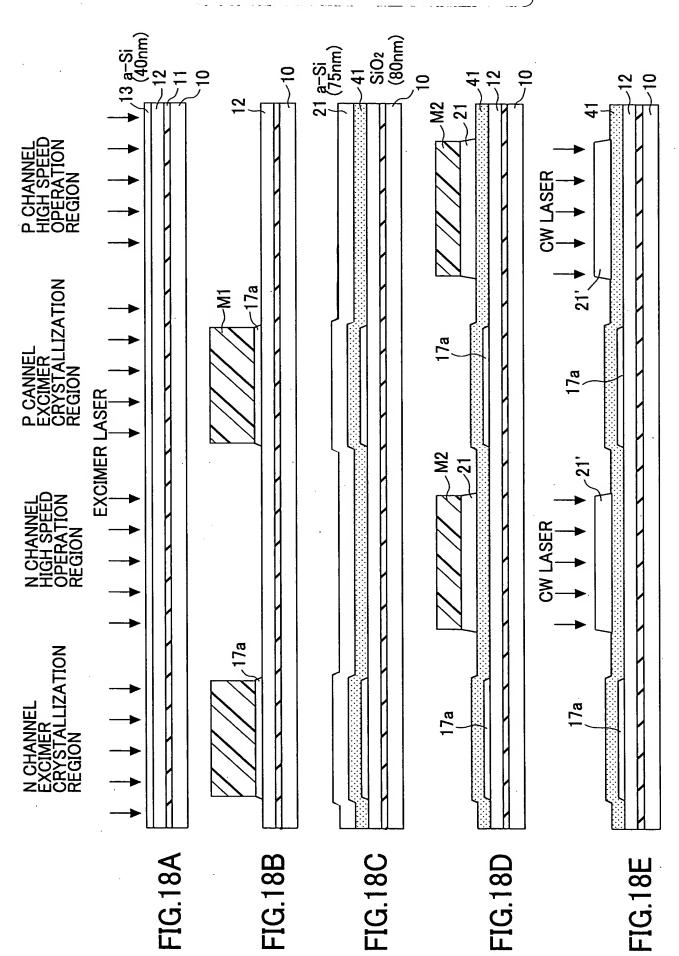
THIN FILM TRANSISTOR SUBSTRATE... 3/25/04
Kazushige Hotta
Greer, Burns & Crain, Ltd. (Patrick Burns)
Ref. No. 2803.70178
Sheet 36 of 46 (312) 360 0080



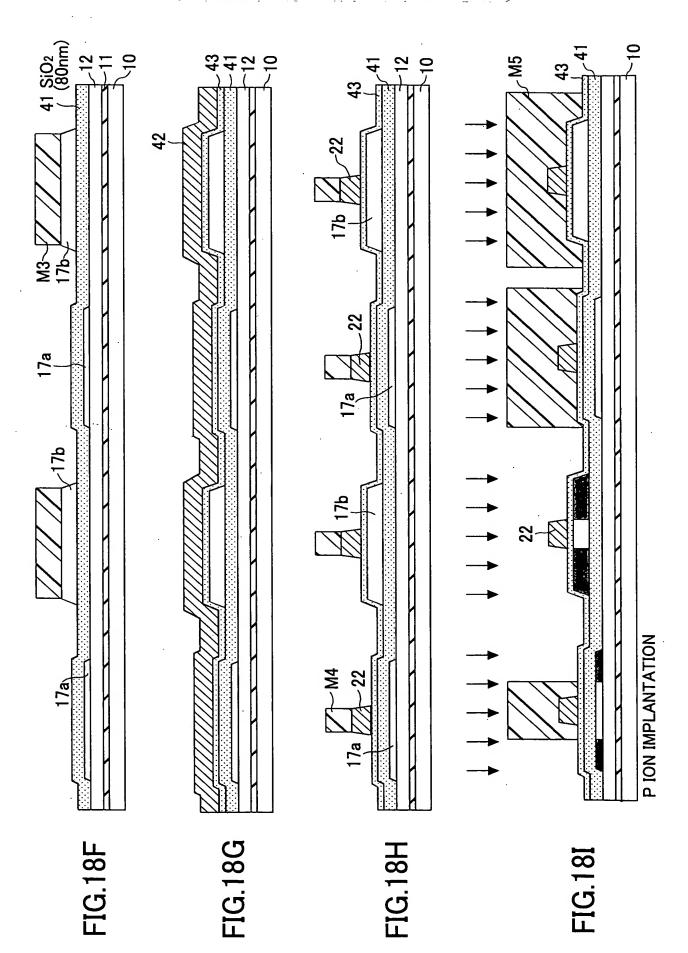
THIN FILM TRANSISTOR SUBSTRATE... 3/25/04
Kazushige Hotta
Greer, Burns & Crain, Ltd. (Patrick Burns)
Ref. No. 2803.70178
Sheet 37 of 46 (312) 360 0080



THIN FILM TRANSISTOR SUBSTRATE... 3/25/04 Kazushige Hotta
Greer, Burns & Crain, Ltd. (Patrick Burns)
Ref. No. 2803.70178
Sheet 38 of 46 (312) 360 0080



THIN FILM TRANSISTOR SUBSTRATE... 3/25/04
Razushige Hotta
Greer, Burns & Crain, Ltd. (Patrick Burns)
Ref. No. 2803.70178
Sheet 39 of 46 (312) 360 0080



THIN FILM TRANSISTOR SUBSTRATE... 3/25/04
Kazushige Hotta
Greer, Burns & Crain, Ltd. (Patrick Burns)
Ref. No. 2803.70178
Sheet 40 of 46 (312) 360 0080 3/25/04 9W-LOW CONCENTRATION P ION IMPLANTATION 75 **B ION IMPLANTATION** 16 18 LASER ACTIVATION

FIG.18K

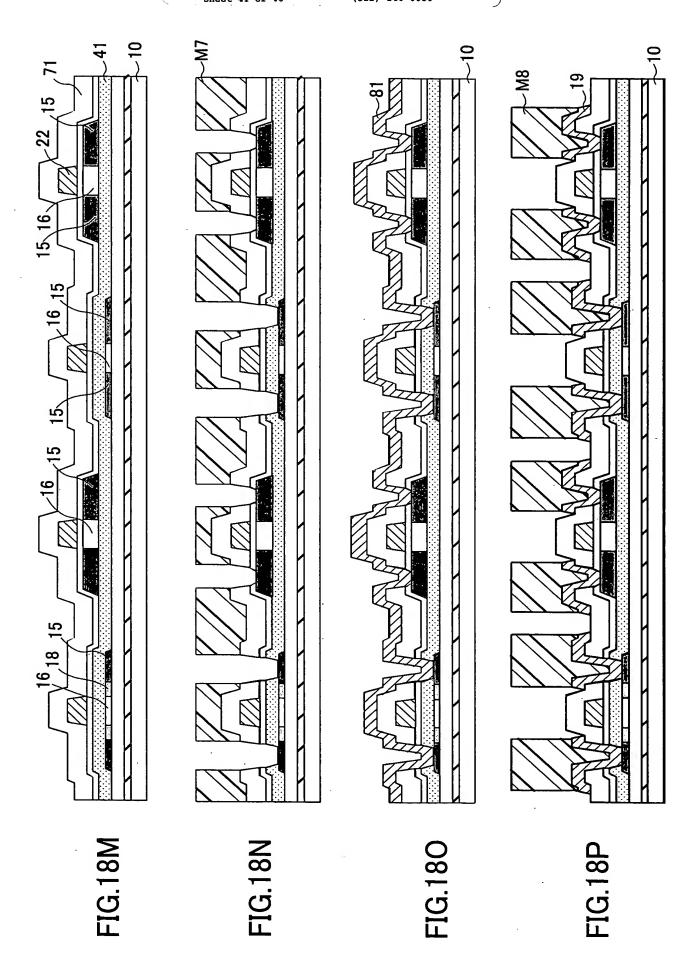
15

2

FIG.18J

FIG.18L

THIN FILM TRANSISTOR SUBSTRATE... 3/25/04
Kazushige Hotta
Greer, Burns & Crain, Ltd. (Patrick Burns)
Ref. No. 2803.70178
Sheet 41 of 46 (312) 360 0080

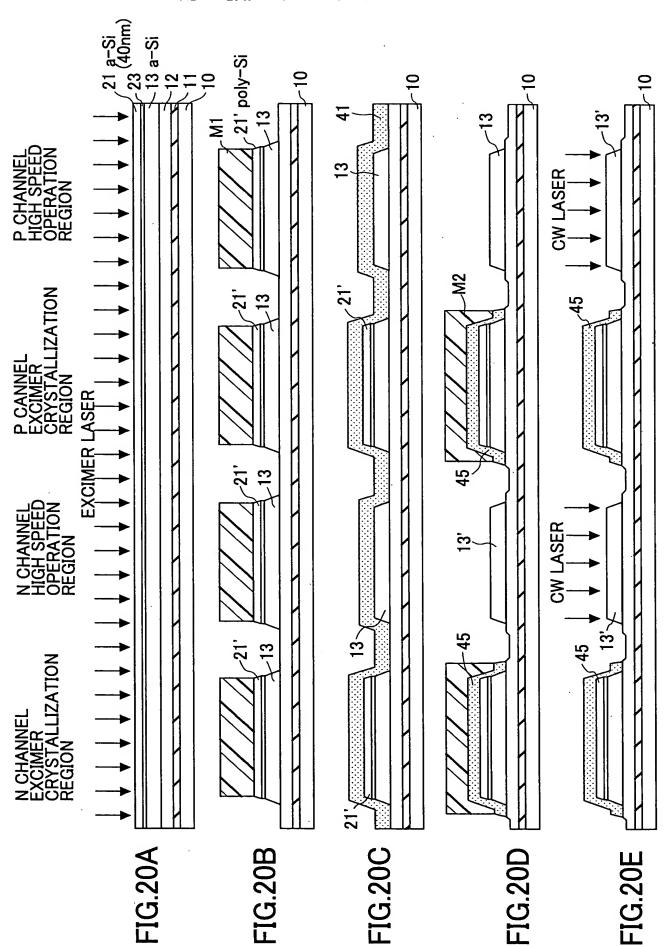


Kazushige Hotta Greer, Burns & Crain, Ref. No. 2803.70178 Sheet 42 of 46 (Patrick Burns) (312) 360 0080 13 a-Si (40nm) 12 ~41 SiO₂ (80nm) 21 a−Si → (75nm) 9 -17b ^M2 CW LASER P CHAN HIGH SP OPERAT REGION 17a 17a P CANNEL EXCIMER CRYSTALL REGION **EXCIMER LASER** 21 , **М**2 CW LASER → → → → |**7**a FIG.19A FIG.19C FIG.19D FIG.19B FIG.19E

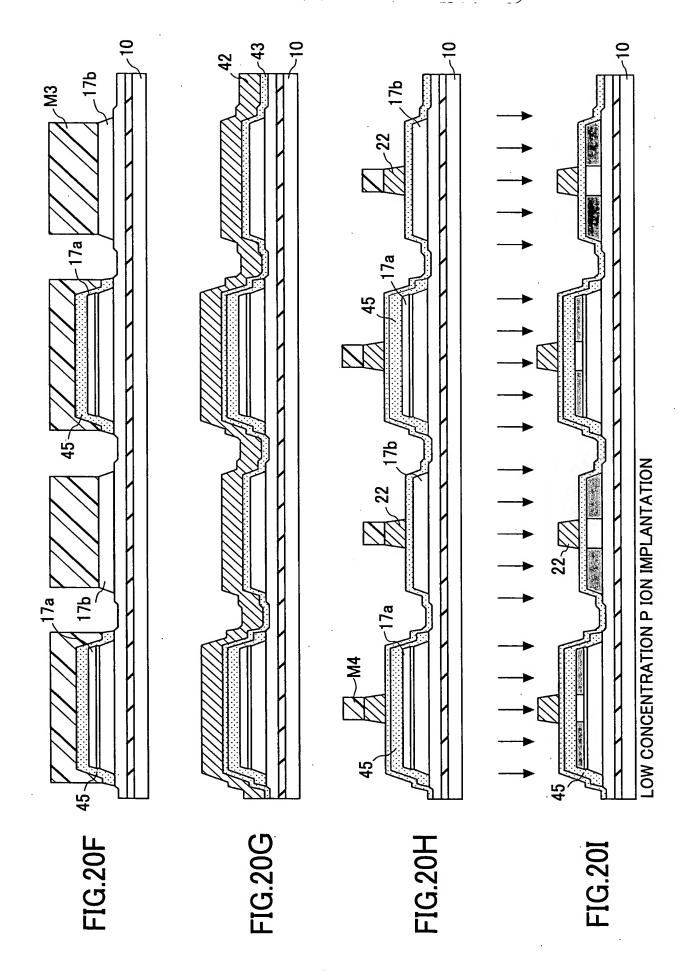
THIN FILM TRANSISTOR SUBSTRATE...

3/25/04

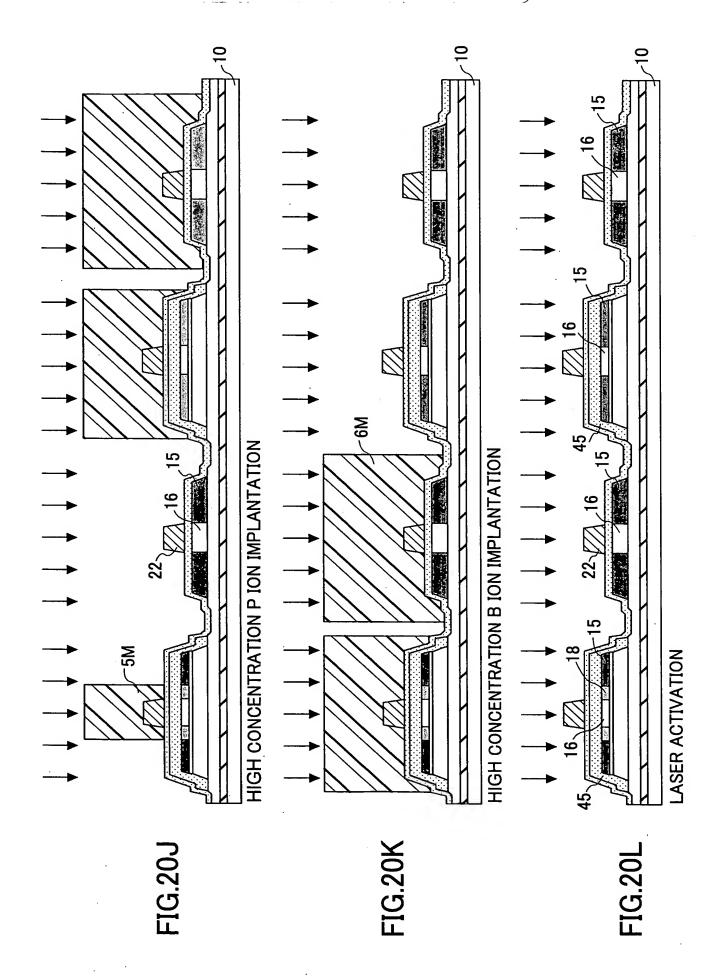
THIN FILM TRANSISTOR SUBSTRATE... 3/25/04
Kazushige Hotta
Greer, Burns & Crain, Ltd. (Patrick Burns)
Ref. No. 2803.70178
Sheet 43 of 46 (312) 360 0080



THIN FILM TRANSISTOR SUBSTRATE... 3/25/04
Kazushige Hotta
Greer, Burns & Crain, Ltd. (Patrick Burns)
Ref. No. 2803.70178
Sheet 44 of 46 (312) 360 0080



THIN FILM TRANSISTOR SUBSTRATE... 3/25/04
Kazushige Hotta
Greer, Burns & Crain, Ltd. (Patrick Burns)
Ref. No. 2803.70178
Sheet 45 of 46 (312) 360 0080



THIN FILM TRANSISTOR SUBSTRATE... 3/25/04
Kazushige Hotta
Greer, Burns & Crain, Ltd. (Patrick Burns)
Ref. No. 2803.70178
Sheet 46 of 46 (312) 360 0080

